

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No:Q87586

Morikawa, et al.

Serial No.: 10/537,465

Art Unit: 1796

Filed : June 3, 2005

Examiner: Henry S.Hu

Title : FLUORINE-CONTAINING POLYMER COMPOSITION AND CURED
BODY

DECLARATION UNDER RULE 132

Honorable Commissioner of Patents and Trademarks,

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

I, Tatsuya Morikawa, a citizen of Japan and having postal mailing address of c/o DAIKIN INDUSTRIES, Ltd., Yodogawa Plant. 1-1, Nishihitotsuya, Settsu-shi, Osaka 566-8585 JAPAN, declare and say that:

In March 1991, I was graduated from Osaka University and received a Bachelor's Degree in Science;

I am one of the inventors of the above-identified application and familiar with the subject matter thereof;

I have read the Official Action mailed and the references cited therein and I am familiar with the subject matter thereof;

I respectfully submit herewith my exact report thereon.

The following experiments were conducted by me or

under my direct supervision.

Experimental Example

A 0.7 L stainless autoclave was charged with 300 ml of deionised water. 4.1 g of sodium perfluorooctanoate was dissolved therein. The pH of this solution was adjusted to about 10 with sodium hydroxide. 0.7 g of triallyl isocyanurate was then dispersed therein. The system inside was deprived of oxygen by purging with nitrogen gas.

The temperature was raised to 70°C while stirring, the mixed gas composed of vinylidene fluoride [VdF] and hexafluoropropene [HFP] in a mole ratio of 60:40 was fed under pressure. Then, 1.6 g of ammonium persulfate [APS] dissolved in 20 ml of water was introduced as a polymerization initiator. To compensate for the pressure reduction in the system inside as otherwise resulting from the progress of the polymerization, each time the consumption resulted in a drop in vessel inside pressure to 0.18 MPa·G, the mixed gas composed of VdF and HFP in a mole ratio of 78:22 was additionally fed to raise the pressure to 0.22 MPa·G and repetitions of this procedure were carried out. 1.3 g of triallyl isocyanurate dissolved in t-butanol was pumped in over a period of 35 hours. Every 6 hours from the start of the polymerization the solution of 0.5 g of APS dissolved in 10 g of water was fed and the polymerization was continued. After a total reaction time of 35 hours, the contents of the autoclave were cooled and the unreacted gas mixture

was removed. The aqueous emulsion thus obtained was poured into 300 ml of a 4 wt% magnesium sulphate solution for coagulation of the product. The product was washed with water and then dried to give 41 g of a sticky liquid polymer (e).

NMR and IR analysis revealed that the resulting polymer was the random terpolymer composed of VdF/HFP/triallyl isocyanurate.

To 0.1 g of the liquid polymer (e) were added 0.0157 g of a methylhydrosiloxane/dimethylsiloxane copolymer (trademark: HMS-301, product of Gelest, Inc.; molecular weight 1900 to 2000, methylhydrosiloxane content 25 to 30% by mass of the copolymer) and 0.0080 g of a 0.06% platinum catalyst solution in toluene [prepared by 200-fold dilution of PT-VTSC-12.OVTS (trademark, product of OMG Precious Metals Japan Co., Ltd.) with toluene], and the mixture was stirred at 50°C for 2 hours to give a liquid polymer composition (iv). This liquid polymer composition (iv) was sticky.

The liquid polymer composition (iv) was sandwiched between two fluororesin films, and the thus-formed sheet was then heated at 150°C for 1 hour. This heating gave a cured material in a sheet form. The cured material obtained was immersed in acetone and it was confirmed that the cured material was partially dissolved and was not maintained the sheet form. The reason for this result was presumably insufficiency of the curing reaction, since the liquid polymer (e) did not have a curing site at polymer chain termini but had polymer chains not

involved in a curing reaction.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this 11th day of April , 2008

Tatsuya Morikawa

Tatsuya Morikawa